REMARKS

In the Final Office Action mailed January 08, 2007 (the "Office Action"), claims 1, 2, 10, 11, 14, 15, 21, and 23 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,762,920 to Parker ("Parker"). Claims 3, 4, 12, 13, 16-19, and 24 were rejected under 35 U.S.C. 103(a) as unpatentable over Parker in view of Conova et al. (Patent Application Publication No. 2003/0202304) ("Conova"). Claims 5-7, 9, 20, and 22 were rejected under 35 U.S.C. 103(a) as unpatentable over Parker in view of Huang et al. (U.S. Patent No. 6,952,335) ("Huang"). Claim 8 was rejected under 35 U.S.C. 103(a) as unpatentable over Parker in view of Yoshida et al. (U.S. Patent No. 6,791,207) ("Yoshida"). The amendments to claims 1, 14, and 21 render moot the rejections of claims 1-19, and 21-24.

Rejection of claims 1, 2, 10, 11, 14, 15, 21, and 23 under 35 U.S.C. § 102(e) as being anticipated by Parker

Parker discloses a system to detect an arc fault in variable frequency AC systems. As Parker explicitly points out, the system disclosed is for use to detect arc faults in AC systems (Title; Column 1, line 17; Column 1, lines 54-55). The system of Parker comprises a current detector and processing means to process the transient current signal for indications of an arc fault. Although the exact details of the signal processing varies with different embodiments, it essentially compares a computed quantity based on the characteristics of the current in the circuit to a threshold value. When the computed quantity exceeds the threshold value, an arc fault is detected (column 3, lines 25-55). The computed quantity used by Parker is the accumulation of the increase in magnitudes of AC currents in two successive half cycles weighted by the period of the half cycle.

That is, the computed quantity of Parker is based on the characteristics of an AC current, namely cycles and period of the cycle. It should be pointed out that the approach of Parker in determining the computed quantity based on increase in amplitude of each successive current cycle will not work with DC currents since DC currents are not cyclic and do not have a period.

Parker does not disclose or suggest each and every aspect of independent claims 1, 14 and 21. Amended independent claim 1 recites "an electrically conductive line carrying a DC current," "a sensor that outputs a voltage level indicative of a magnitude of the DC current," and "a comparator that compares the voltage level to a reference potential and generates a circuit indicator signal." Claim 14 recites "sensing the DC current flowing in the electrically conductive line," "generating a voltage level indicative of a magnitude of the DC current," and "comparing the voltage level to a reference voltage and generating a circuit indicator signal." Similarly claim 21 recites "a sensor that outputs a voltage level indicative of a magnitude of the DC current," and "a comparator that compares the voltage level to a reference potential and generates a circuit indicator signal."

Instead of comparing a voltage that is indicative of the DC current in the electrically conductive line to a reference voltage (as required by claims 1, 14, and 21), Parker, as described earlier, compares a computed quantity based on the characteristics of the AC current in the circuit (frequency, cycles, period, etc.) to a threshold value (column 3, lines 35-50; see also Figs. 2 and 3). As explained earlier, the approach of Parker is specifically tailored for AC currents and will not be suitable for DC currents. That is, in addition to Parker not disclosing or suggesting each and every

aspect of independent claims 1, 14 and 21, the concept of Parker will not work with DC currents. Accordingly, Applicant respectfully requests withdrawal of the Section 102(e) rejection against claims 1, 14 and 21.

Claims 2, 10, and 11 depend from claim 1, claim 15 depends from claim 14, and claim 23 depends from claim 21. Therefore, these claims are allowable over Parker at least for the same reasons that their respective independent claims are allowable. Accordingly, Applicant respectfully requests withdrawal of the §102(e) rejection.

Further, the obviousness rejections of claims 3-9, 12, 13, 16-19, 22, and 24 under 35 U.S.C. §103(a) are improper for the following additional reasons.

Obviousness Rejections

Although the amendments to independent claims 1, 14, and 21 make these rejections moot, Applicant provides the following remarks to preempt similar rejections to any claim in a subsequent Office Action.

Parker in view of Conova

In the Office Action, claims 3, 4, 12, 13, 16-19, and 24 were rejected under 35 U.S.C. 103(a) as unpatentable over Parker in view of Conova. The obviousness rejection set forth in the Office Action asserts that it would have been obvious to incorporate the missing elements in Parker, such as, for example, a MOSFET, fuse, reset switch, etc., from Conova. However, Conova does not remedy the deficiency of Parker discussed above. In addition, there is no suggestion, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, that incorporating these elements is desirable, or even that there would be any expectation

of success. For at least these reasons the §103(a) rejection of claims 3, 4, 12, 13, 16-19, and 24 should be withdrawn.

Parker in view of Huang

In the Office Action, claims 5-7, 9, 20, and 22 were rejected under 35 U.S.C. 103(a) as unpatentable over Parker in view of Huang. Claim 20 is now cancelled. Claims 5-7 recite different magnitudes of the DC current in the electrically conductive line, and claims 9 and 22 recite that the sensor recited in independent claims 1 and 21 respectively is a Hall effect sensor. The Examiner claims that Huang teaches an DC circuit breaker with an electrically conductive line energized to at least 60, 200, and 300 VDC, and that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Huang and Parker (Office Action, page 7).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 706.02(j).

Huang does not remedy the previously described deficiencies of Parker. Moreover, combining Huang with Parker would not provide one of ordinary skill in the art at the time of the invention with a reasonable expectation of success, since, as mentioned earlier, Parker relies on the properties of an AC current for the functioning of his system. Combining Huang with Parker would make the system of Parker

inoperative. For at least these reasons, the §103(a) rejection of claims 5-7 should be withdrawn.

In addition, there is no suggestion, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to incorporate the Hall effect sensor of Huang into the system of Parker. For at least these reasons the §103(a) rejection of claims 9 and 22 should be withdrawn.

Parker in view of Yoshida

In the Office Action, Claim 8 was rejected under 35 U.S.C. 103(a) as unpatentable over Parker in view of Yoshida. Claims 8 depends from claim 1. As discussed above, Parker does not disclose or suggest each and every aspect of independent claim 1. Yoshida does not remedy the deficiency of Parker. For at least this reason, §103(a) rejection of claim 8 should be withdrawn.

CONCLUSION

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1-19 and 21-24 in condition for allowance. Applicant submits that the proposed amendments of claims 1, 14, and 21 do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. For example, claim 1 has been amended to include subject matter similar to that present in dependent claims 5-7, claim 14 has been amended to incorporate the subject matter of canceled claim 20, and amended claim 21 includes similar language. Therefore, this Amendment should allow for immediate action by the Examiner. Finally, Applicant submits that the entry of the

amendment would place the application in better form for appeal, should the Examiner dispute the patentability of the pending claims.

In view of the foregoing remarks, Applicant submits that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration of the application, and the timely allowance of the pending claims.

Applicant respectfully requests that the Examiner contact the undersigned, Elizabeth M. Burke, if he considers that the present response does not overcome the prior art of record. The undersigned can be reached at (202) 408-4488.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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